School Inclusion For Seriously Ill Children. A Website To Share Experiences Of Telepresence Robots In Schools

Student Dissertation

FRI: School Inclusion For Seriously Ill Children. A Website To Share Experiences Of Telepresence Robots In Schools. (Samantha Bennett)

Cloud created by:

Samantha Bennett
31 December 2018

https://sway.office.com/gYCPkw4IMeg2mGCp?ref=Link

Each year, approximately 225,000 children in England are absent from school for extended periods of time due to illness (DfE, 2018). In the UK, local authorities are required to provide a suitable, alternative education for these children (DfE, 2013), usually in the form of tuition at home or at a hospital school. Whilst these alternatives can enable educational inclusion, ensuring that children do not miss out academically, they often do not provide essential social interactions with their peers or inclusion within the context of their own school community. Without maintaining this connection to their friends, teachers and school routines, these children can quickly develop a sense of isolation from the world that they know. This social disconnection can create difficulties when returning to school (CLIC Sargent 2012) and have lasting impacts upon their future relationships and emotional well-being (Donnan et al., 2015).

In order to help these children to stay connected to their schools during their treatment, telepresence robots have been used in a number of countries, including the USA, Australia and France, and more recently in the UK. Originally designed for use by telecommuters in office environments, they are increasingly being adopted by educational settings for children and students who are unable to attend in person.

UK Government investment (DfE, 2018) and recent media interest has highlighted the potential benefits of this innovative use of telepresence robots, with the possibility to extend their use to students suffering from wide range of physical and mental health conditions. A combination of political, economic, social and technological factors are likely to ensure that telepresence robots will become increasingly popular in schools and other educational settings in the future (Goldsmith, 2016) . However, the ad-hoc and geographically disparate adoption of this technology, combined with the lack of research into the use of telepresence robots in real-world mainstream classrooms (Newhart et. al., 2016), means that we still have much to learn about the effectiveness of this technology in educational settings.

Through personal experience of supporting a child using a telepresence robot whilst undergoing cancer treatment, the author has gained valuable insights into the transformative

potential of this technology for the emotional well-being of children who are unable to attend school due to illness.The author has also witnessed many of the challenges and constraints in implementing this technology successfully in schools, from the student, teacher and institutional perspectives. This leads to a question being raised on the extent to which telepresence robots can enable ‘real’ inclusion.

Due to the limited use of telepresence robots in schools in the UK, I have been motivated to utilise and develop online networks with the purpose of sharing stories and experiences from across the world and to encourage a more critical approach to their use and implementation.

My presentation will tell the story of my learning journey, specifically focussing upon the development of a website as a tool to build and consolidate a global 'Robots In Schools' network.

Extra content

+ Add extra content

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Discussion (21) Links (0) Academic References (6)

Munir Moosa Sadruddin
8:56am 20 January 2019 Permalink

Hi Samantha

Great work! I am also working for children battling with cancer! It is so good to learn that robots are used in many parts of world for social inclusion of children battling illness. I am curious to learn if you have taken assent from the child and consent from his/her parents?

In Pakistan, use of robot is not possible so we have initiated a school within cancer hospital for children to continue their education. Also the term seriously ill has many meanings. There are a few serious illness which even make children unconscious. I want to know if your project focusing on any specific illness?

Munir Moosa Sadruddin
9:12am 20 January 2019 Permalink

Hi Samantha

Just sharing one link which I found useful

Practitioner' Online Conference 2019

+ Add to a Cloudscape

Improve this cloud

+ Add a tag

+ Add extra content

+ Add embedded content

+ Add link

+ Add reference

https://www.thetechedvocate.org/robots-help-chronically-ill-kids-attend-school/

Samantha Bennett
8:59pm 21 January 2019 (*Edited 10:12pm 21 January 2019*) Permalink

Thanks for you questions Munir. One thing I have learnt from this experience is that cancer affects children indiscriminately wherever they are in the world, but there are huge variations in their chances of survival depending upon where they live. It is shocking and so unfair.

Telepresence robots have only recently been introduced in the UK - and it is by no means a policy-driven implementation - more a result of a few pioneers working in hospital schools.

You are right, the term 'serious illness' has many meanings and there is no definitive list as to the specific illnesses this would include. Essentially, a telepresence robot could be used for children who are frequently absent from school, or absent for long periods of time, due to any illness, including physical or mental health conditions. One advantage of this technology is that it is portable - so students can use their robot whilst they are having treatment in hospital (if they are feeling well enough) or when they are recovering at home in between chemotheraphy treatments.

Sometimes during treatment children may feel well enough to go into school, but they are not allowed to do so due the risk of contracting an infection. The ability to use this technology flexibly, as and when appropriate for the individual child, is one of its main benefits.

It's also important to recognise that this technology may not be suitable for all children and should be used on a case-by-case basis. Some children may feel that it draws too much attention to them - especially at time when they are undergoing physical changes such as hair loss.

I have received child and parental permission for any images and stories which I share publically.

Munir Moosa Sadruddin
8:12am 23 January 2019 Permalink

Thank you so much Samantha for your reply. It is good to learn that it is used by hospitals but I can see its long term benefits and your research can also influence policy makers in the future to learn about its significance through the lens of learners.

I have used drawing therapy for the children battling illness in Pakistan as robot is quite expensive and not yet introduced in our context. You can find my research paper on http://www.journal.sajc.org/article.asp?issn=2278-330X;year=2013;volume=2;issue=3;spage=113;epage=118;aulast=Sadruddin

Are these robots safe? Free from radiations?

Munir

Jonathan Leese
4:37pm 29 January 2019 Permalink

Hi there Sam, this sounds like an enjoyable session. I was wondering if you are going to consider where the best examples in the world (I imagine private sector somewhere) in engaging with learnng? On a different note, it would be interesting to get your thoughts on how say either Augmented Reality or VR could be used alongside a robot to bring learning to life?

I was thinking of something like https://nearpod.com/nearpod-vr

might be of interest to you?

patrick shearer
12:14am 30 January 2019 Permalink

Hi Samantha,

I have been enjoying your work since my first look at it in OS. Completely fascinating topic and very pertinent for all pupils/students who find themselves 'housebound'. We have two students at the moment who are struggllling to leave home to come to College due to anxiety issues/panic attacks. They have missed so much of the year so far and we are really struggling to support them. Your work is inspiring and valuable. Looking forward to the Conference.

Sioban James
9:04pm 30 January 2019 Permalink

I've been following your project too Sam, since the start it caught my attention. I come from a teaching background, has there been any research into teacher attitudes towards this? As a teacher I have so many quetsions about how this would work in the classroom - who manages the robot, what if it needs a reboot, what training is available for teachers to integrate this into the classroom, who makes sure the wifi works, so many questions but a technology that I can see could transform lives and educational experiences.

Does it have anyother applications - for example, if a student happens to be geographically isolated - possibly not in the UK. IT can solve such issues but the point about meeting social needs is so very important, especially for younger students.

I don't expect answers - just wanted to show that your work has prompted much thinking on my part!

Phill Grimes

10:11am 2 February 2019 Permalink

I also, am following this work. I feel that FE may be a little behind, but once this takes a foothold in secondary education and proves its worth, FE could likely be not far behind. Especially in institutions which are more inclusive.

My only concern is that teachers have a more and more diverse skillset that is required and we add that of working with a robot. This seems like it would need to have a very expicit training and support which may require more money in an ever decreasing funding spiral.

Is there a separate funding stream that could be used?

Samantha Bennett
1:30pm 3 February 2019 Permalink

Thanks for all your questions, comments and positive feedback. A few responses:

Some US states and a few countries in Europe (e.g. Netherlands, Belgium, Norway) have been using these robots for a number of years. Australia and France have recently managed to introduce more policy-driven, widespread implementation of this technology, but it's still hard to find any real evidence of their 'success' as research is still very thin on the ground.

Thanks for the 'nearpod' link. I love the use of VR for 'virtual' fieldtrips (it's the geographer in me!). It looks similar to Google Expeditions. I've not thought about the use of AR or VR alongside the use of telepresence robots, but I like the idea of children connecting to a virtual world regardless of the their current location (e.g. classroom or hospital) so that they can all share the same space. That would be an inclusive experience! Ofcourse, many of they already do that from their homes when they join up via their games consoles, but it would be good to have a bit more of an educational benefit.

Telepresence robots can of course be used for students of all ages who are unable to physically attend school for any reason. Most of the stories in the media are from children who have experienced a serious physical illness (such as cancer), but no doubt they are also being used for children with mental health conditions or those who are geographically isolated.

Sioban - You are right to question how this would work in the classroom because there are so many barriers to this technology which impact upon inclusion. Most of these barriers don't relate to the technology itself, but to the implementation of the technology. 'Virtual inclusion' is not the same as 'real inclusion' and one of my fears is that if students feel that the gulf between the two is too great then they may end up feeling even more isolated.


Munir Moosa Sadruddin
6:40am 9 February 2019 Permalink

Samantha, do you think mobile technology can be used in countries like Pakistan, where

telepresence robots are unavailable as a substitute? Have you come across any research on mobile usage for the education of children battling serious illness? I awant to work on it in Pakistan for children battling cancer.

Kelly Williams
11:26am 10 February 2019 Permalink

Hi Sam,

I had a discussion with a teacher who had used telelearning in the past but had not had a good experience. The issue was with parental over-involvement with the work submitted by the students involved. I would counter that this type of more physically mobile technology may resolve this as the student is on view in the class and acts as part of the class and gains instant feedback from staff and peers. In addition, there is always a risk of any students not doing tasks when they are set as homework. Working with and involving parents on setting expectations for learner ownership prior to technology implementation may be key to this?

Kelly Williams
11:27am 10 February 2019 (*Edited 11:28am 10 February 2019*) Permalink

All the best for your presentation, can't be there in person so will have to view on 'catch-up' :)

Catherine Penny James
7:11pm 10 February 2019 Permalink

Hi Samantha

I am really intrigued about these robots! How do they work - do they "stream" the class content to the child remotely, or does the child interact directly with the robot? (I am trying to work out whether the robot is in the classroom, with the child, or both - I'm sorry for such a basic question!)

Samantha Bennett
9:17pm 10 February 2019 (*Edited 9:17pm 10 February 2019*) Permalink

In answer to some of your questions: Munir - I'm not 100% sure what you have in mind when referring to 'mobile technology', but essentially, if there is a good internet connection at both ends and access to appropriate technology then students could make use of any teleconferencing system to connect with their schools whilst they are unable to attend in person (such as Skype or Google Hangouts). However, I would say that the technological barriers are only one of the hurdles to overcome when implementing this technology in schools. As with any technological implementation the biggest barriers often relate to people, processes and politics. Given the positive media attention that these robots have

had recently, it's so important to raise awareness of these wider implementation issues which was actually the main motivation behind my Robots In Schools website. Kelly - Yes I can see how parental over involvement could be an issue in that situation. However, telepresence robots merely act as the student's eyes and ears in a live classroom situation - and parents are required to sign a disclaimer to say that they won't even be in the same room as their child while they are using the robot (otherwise they would also have access to the child's classroom so a child protection issue). This can result in children having greater autonomy and independence in their learning as they are not dependent upon their parent to help them to access their schoolwork and all learning interactions are in real time. Catherine - I also was a bit bemused when the teacher from the hospital school first explained how the robot would work. I think the best way to understand it is to watch the BBC clip in my poster so that you can see it in action. To create the clip, there was one BBC film crew at my house filming Adam using the robot, and at the same time another BBC film crew at his school filming the robot which was being controlled by Adam from an iPad. Both of the film crews were a bit nervous as to whether it would work, but it all went quite smoothly, no technical glitches and Adam even learnt some maths!

Munir Moosa Sadruddin
8:32am 12 February 2019 Permalink

Hi Samantha

I agree, accessibility to technology could be the biggest barrier besides cost. In Pakistan, public schools do not have internet facilities. We also need to change the mindset of people. All must take ownership including students as in Pakistan, many illness is considered as taboo, so we really need to empower people.

Whildren battling illness

How many types of telerobots are present? Do all work with same mechanism?

Hope these robots can be used in Pakistan in the near future.

Munir Moosa Sadruddin
9:02am 12 February 2019 Permalink

Hi Samantha

I see alot of scope in your project.

Accessibility to technology could be the biggest barrier besides cost. What is more important than these is the willingness and mind-set of people. In Pakistan, many illness is considered as taboo, so we really need to empower people before launching any initiative.

Parental support and willingness to use telerobots for learning is also important.

What are your views on the impact of virtual interaction on the well-being of children battling illness? Do you think it takes them out of social isolation?

Are these robots harmful? Do they carry any radiations?

I am curious to learn about robot maintainence and cost?

I think in Pakistan, cheap version of telerobots would work. I used the word mobile technology which means that I intend to use mobile camera in the real classroom setting and another mobile camera connected via networking by a child as a substitute of robots.

Hope twe can collaborate in the future and benefit little warriors!

Munir

Dr Simon Ball
3:37pm 18 February 2019 Permalink

Hi Sam

Well done on a great presentation! Here is a summary of the comments and questions you received following your presentation (including those you may have addressed verbally). Please respond in whatever way you choose.

Best wishes

Simon

- Do you think that a PC with skype equivalent would have the same benefits? Do you need to have the mobility factor?
- Can we use mobile smartphone as replacement of telerobot as these are expensive for Pakistan to afford
- I know in medicine, telepresence doctors often had a negative perception, because they weren't 'really' there. How might we start to change this perception?
- What is the attitude of schools in UK towards telerobots
- How did Adam's teachers respond to having the robot in the classroom? Did they adapt their teaching? I imagine it could be a very powerful tool if combined with other online technologies - for example, if the class were already collaborating on Google Docs, or using the Q and A options in Slides, or realtime interaction in PollEverywhere.
- You mentioned corporate sponsorship, what concerns do you have about their involvement?
- I wonder if pairing with MD Anderson (cancer center in the US) would be helpful? https://www.mdanderson.org/publications/cancerwise/pediatric-cancer-patients-connect-through-a-robot.h00-159143667.html
- Could some teachers feel threatened? Are the interactions recorded?
- What's the cost of one robot Sam?

Samantha Bennett
11:34am 21 February 2019 Permalink

Thanks for your questions during my conference presentation. I'll now attempt to answer

some of these below:

Do you think that a PC with skype equivalent would have the same benefits? Do you need to have the mobility factor?

Any technology which enables students to live stream with their own classroom could support 'virtual inclusion'. The advantage of the mobile telepresence robot is that the student can move it themselves remotely giving them more freedom to move around the school as they wish. So if they want to join their friends at break time or lunch time then they can do so.

What is the attitude of schools in UK towards telerobots?

Because they are so new, the initial reaction from a school (or more specifically a headteacher) is often very cautious due to the privacy/security issues. I have had parents contact me to say that their child's school will not allow their child to use a robot. This is why in my expereince, the role of the Oxfordshire Hospital School has been crucial as they have not only provided the technology, but they have been able to support the school in overcoming any of the concerns and barriers to its implementation. For example, they developed a partnership agreement which stated that no one else should be in the same room as the child when they are using the robot. The robot technology doesn't have any recording capabilities and the school did need to obtain permission from the school governors before allowing the robot to be used.

How did Adam's teachers respond to having the robot in the classroom? Did they adapt their teaching?

As this was their first experience of teaching via the robot, and some of them only experienced it once or twice with Adam, they were a little unsure about what to do. Some would check that he was able to see and hear everything OK and others (usually the supply/cover teachers) just ignored him. A couple of times, teachers did e-mail their lesson slides or worksheets to Adam (via me) in advance of the lesson so that he could prepare ahead of time. Some practical lessons were not suitable for participation via the robot and experience has shown that successful implementation can be easier in Primary schools where students spend most of their time in one classroom with one teacher. This area of teacher support is certainly one I would like to follow-up on.

I imagine it could be a very powerful tool if combined with other online technologies - for example, if the class were already collaborating on Google Docs, or using the Q and A options in Slides, or realtime interaction in PollEverywhere.

This is a very good point. For example, if the robot was used in conjunction with Google Classroom, then it would overcome many of the logistical and practical issues which represented the biggest barriers to its successful implementation - e.g. students having access to worksheets and resources, completing work online, receiving feedback from teachers etc. It could be a much more inclusive experience if used in conjunction with other online technologies, but this expereince made me realise that schools are still a really long way off from having such a joined up technological approach.

You mentioned corporate sponsorship, what concerns do you have about their involvement?

If corporate sponsorship is going to enable more children to have access to this technology then I would personally be in favour of that. It would be good to see the robot

manufacturers investing in this technology to ensure that it is more appropriate for educational settings and making it more affordable for this market, but I think that will come. However, the biggest concern is not the technology itself, but enabling schools and teachers to provide appropriate support to students who are using this technology. Given the cuts in school budgets, especially for SEND support, it would be unlikely that teachers would receive any special training or guidance in this area.

I wonder if pairing with MD Anderson (cancer center in the US) would be helpful? https://www.mdanderson.org/publications/cancerwise/pediatric-cancer-patients-connect-through-a-robot.h00-159143667.html

Thanks for the link. I'll look into that.

Could some teachers feel threatened? Are the interactions recorded?

The student is the only person allowed to operate the robot and should be alone whilst doing so. The technology does not have the capacity to record anything, only live stream. I think, with some robots, it is possible to take a screenshot which could be useful if they need to take a photo of the board or of a particular learning resource which they may not have access to.

What's the cost of one robot Sam?

It varies depending upon the make/model, but Adam used the Double 2 robot which cost about £5,000 including the additional iPad.

Samantha Bennett
11:35am 21 February 2019 Permalink

Thanks for your questions during my conference presentation. I'll now attempt to answer some of these below:

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about £5,000 including the additional iPad.

Dr Simon Ball
8:11am 28 February 2019 Permalink

Many Congratulations Sam! Your presentation has been voted by delegates to be one of the most effective of the H818 Online Conference 2019 and you are officially one of our H818 Presentation Star Open Badge Winners! Please see how to Apply for your Badge here: http://cloudworks.ac.uk/badge/view/33

Well done!

Simon

H818 Conference Organiser

Samantha Bennett
6:51pm 28 February 2019 Permalink

Wow. That's so amazing. There were so many great presentations. Thank you for voting for me - my first digital badge.

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